

**REMARKS**

Reconsideration and allowance of the claims are respectfully requested in view of the following remarks.

**Claim Disposition**

Claims 1 – 23, 26 - 28 are pending in the present application. Claims 1 – 8, 12 – 18, 21, 22, and 26 - 28 stand rejected. Claims 9 – 11, 19, 20, and 23 are objected to.

**Claim Rejections 35 U.S.C. §112 First Paragraph**

In reference to Detailed Action Item 2:

Claims 1-5,13 and 28 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner states:

“The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.”

“As best understood, pp 3-4 do not sufficiently describe a “motor position” with respect to the recitations in Claims 1,13 and 28, and that on p 3, of “a difference between a desired motor position, and an actual position”. It is unclear exactly what element of the electric motor is supposed to have positions (“desired” vs. “actual”) to measure. As known, an electric motor has at least one moving part -- the rotor - whereas the steering system including the motor, rack-and-pinion, steering gear mechanism, etc, as well as driver inputs, such as steering angle, steering torque, etc, obviously each have a multitude of moving parts. Within this context, it is unclear what is meant by “motor position”. To address this issue, the spec must be amended to include an adequate description of the excerpted language, but no new matter is permitted.”

Applicants respectfully traverse. The explanation in the specification is adequate. Specifically, review of paragraphs 20 and 21 indicate recitation of two signals, one “a signal indicative of commanded motor position” another, “a signal indicative of actual motor position” both of which are passed to summing function 70 for formulate error signal 73. Therefore, it is clearly taught in the specification that the claimed element “a signal indicative of a difference between a desired motor position and an actual motor position” is taught in the

specification. Applicants respectfully request further clarification of the Examiner's concerns should the Examiner not find the abovementioned arguments persuasive.

**Claim Rejections 35 U.S.C. §112 Second Paragraph**

In reference to Detailed Action Item 3:

Claims 1-5, 13 and 28 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states:

"In Claims 1, 13 and 28, the language "a difference between a desired motor position, and an actual position" is unclear because it is unknown exactly what element of the electric motor is supposed to have positions ("desired" vs. "actual") to measure, as discussed in paragraph 2 above. These Claims must be clarified/amended to render a clear understanding of the invention."

Applicants respectfully traverse, for the reasons presented above, Applicants believe that the Claims are in order. Once again, Applicants respectfully request further clarification of the Examiner's concerns should the Examiner not find the abovementioned arguments persuasive.

**Claim Rejections 35 U.S.C. §102**

Claims 1, 5 -- 8, 13, 27 and 28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Collier-Hallman et al. U.S. Patent 6,122,579, hereinafter denoted Collier-Hallman '579.

Applicants respectfully suggest that the explanation provided in the Office Action mischaracterizes the teaching of Collier-Hallman '579. In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine Inc. v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements "arranged as in the claim." *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1271 (Fed. Cir. 1984). Finally, missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

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Regarding Claims 1, 5, and 13, Applicants respectfully submit, that the abovementioned arguments obviate the concerns regarding commanded and actual motor position. Therefore, Applicants respectfully traverse. Applicants responses regarding rejections based on Collier-Hallman are reiterated below.

Regarding Claims 1, 5, and 13, Applicants respectfully suggest that the explanation provided in the Office Action mischaracterizes the teaching of Collier-Hallman '579. Specifically, Collier-Hallman '579 does not teach or disclose, a method for controlling a feed back torque of a motor. Collier-Hallman '579 does not disclose or teach, "receiving a signal indicative of a difference between a desired motor position and an actual motor position". To support the rejection, the Examiner relies upon Collier-Hallman '579 at Col. 2, lines 52 – 54. However, at Col. 2, lines 52 – 54 Collier-Hallman '579 includes no disclosure of a signal indicative of a difference between a desired motor position and an actual motor position. There is only teaching of a rotor position signal for the motor. Therefore, because Collier-Hallman '579 does not disclose or teach an element of the invention it cannot anticipate Applicants' claims. Thus, Claims 1, 5, and 13 are allowable, the rejection is improper and should be withdrawn.

Futhermore, Collier-Hallman '579 disclose or teach "filtering the received signal into a plurality of frequency bands; and applying a gain to at least one of the filtered frequency bands in correspondence with at least one of the received signal and a low-pass portion of the received signal to provide a motor command." To support the rejection, the Examiner relies upon Collier-Hallman '579 at Col. 5, lines 45 – 57, and Col. 2, lines 45 – 52. However, at Col. 2, lines 45 – 57 Collier-Hallman '579 merely discloses the filtering applied to the torque signal disclosed therein. Once again, Collier-Hallman '579 includes no disclosure with respect to a signal indicative of a difference between a desired motor position and an actual motor position, filtering of such a signal, nor applying a gain to at least one of the filtered frequency bands in correspondence with at least one of the received signal and a low-pass portion of the received signal ....The Examiner's attention is directed to Figure 7 of Collier-Hallman '579 where gain scheduler 128 is employed following low pass filter 120. However, the signal that low pass filter 120 and scheduler 128 act upon is a torque signal. See Col. 5 lines 45 – 57. Therefore, because Collier-Hallman '579 does not disclose or teach an element of the invention it cannot anticipate Applicants' claims. Thus, Claims 1, 6, and 27 are allowable, the rejection is improper and should be withdrawn.

With regard to Claims 2 – 5, these claims include the abovementioned limitations and based on the arguments above are therefore now allowable. Additionally, Claims 2 – 5

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depend from Claim 1, which is now allowable based upon the abovementioned reasoning, and therefore because these claims depend from a claim that is allowable, they too are allowable and the rejections should be withdrawn. MPEP 2143.03.

Regarding Claims 6 and 27, Applicants respectfully submit that the Examiner's response that the cited limitations are in the preamble is noted. However, the preamble of a claim is not to be ignored completely. "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim." See MPEP 2111.02. Therefore, weight is to be given to the elements in the preamble as it "recites limitation of the claim" and "gives life, meaning and vitality" to the claim. Applicants respectfully submit that the previous arguments presented regarding Collier-Hallman '579 overcome the rejections and rebuttal and are therefore reiterated below. Allowance of the claims is respectfully requested. Applicants further submit, that the claims could be amended to more positively claim the elements to address the Examiner's concerns if it is deemed necessary.

Regarding Claims 6 and 27, Applicants respectfully suggest that the explanation provided in the Office Action mischaracterizes the teaching of Collier-Hallman '579. Specifically, Collier-Hallman '579 does not teach or disclose an active steering system. Collier-Hallman '579 is drawn to electric power steering systems, while the claimed invention is drawn to an active steering system, i.e. where a mechanical driver input and an auxiliary input coupled via a differential. Moreover, Collier-Hallman '579 does not disclose or teach, "a feel control algorithm for controlling a feel back torque to a driver". To support the rejection, the Examiner relies upon Collier-Hallman '579 at Col. 5, lines 33 – 57, and Figure 7. However, at Col. 5, lines 33 – 57, and Fig 7, Collier-Hallman '579 merely discloses the filtering applied to the torque signal disclosed therein. Collier-Hallman '579 includes no disclosure of the error signal as claimed. In fact, the Examiner's parenthetical identifies that the signal considered is from torque sensor 28. This is not an error signal, it is a measured parameter of torque. Therefore, because Collier-Hallman '579 does not disclose or teach an element of the invention it cannot anticipate Applicants' claims. Thus, Claims 6 and 27 are allowable, the rejection is improper and should be withdrawn.

With regard to Claims 7 – 11, these claims also include the abovementioned limitations and based on the arguments above are therefore now allowable. Additionally, Claims 7 – 11 depend from Claim 6, which is now allowable based upon the abovementioned

reasoning, and therefore because these claims depend from a claim that is allowable, they too are allowable and the rejections should be withdrawn. MPEP 2143.03.

In reference to Detailed Action Item 5:

Claims 16 - 18, stand rejected under 35 U.S.C. §102(c) as being anticipated by Phillips U.S. Patent 6,370,459, hereinafter Phillips '459.

With regard to Claims 16 - 18, Applicants respectfully suggest that the explanation in the Office Action mischaracterizes the teachings and disclosure of Phillips '459. Applicants respectfully contend that Phillips '459 does not disclose a "differential actuator in operable communication with said input device." The Examiner's attention is directed to note that the relied upon elements speed reduction means (712) and gear reduction means (722) are not in operable communication with the input device, but instead with the motor 26.

In addition, Applicants respectfully contend that Phillips '459 does not disclose a differential actuator as cited in the Application. With respect to the Examiner's rebuttal to the arguments presented previously, Applicants respectfully suggest that the Examiner is not giving the term "differential actuator" its plain meaning, nor the meaning and definition enumerated in the specification. MPEP 2111.01 specifically requires that the claims are to be interpreted as broadly as their terms allow. This means that the words of the claim must be given their plain meaning *unless applicant has provided a clear definition in the specification* (emphasis added). *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1987). A differential actuator and its function are clearly defined in paragraph 2:

"a given motion of the steering wheel may be supplemented by the motion of a differential actuator, for example, to produce a motion of the steerable road wheels that need not correspond to the given motion of the steering wheel. When the differential actuator is inactive, the motion of the steerable road wheels directly corresponds to the steering wheel motion due to the articulated mechanical linkage, as in conventional systems. An operator of such an active steering vehicle can generally feel the forces acting against the steering actuator through the input device, as well as reaction forces typically induced by the actively controlled differential actuator"

Phillips '459 does not disclose or teach a "differential actuator", nor its equivalent. Thus, Claims 16 - 18 are in a condition for allowance, the rejections are improper, and they should be withdrawn.

To support the rejection the Examiner relies upon the element 712/722. The cited element 712/722 is described as a speed reduction means (712) and gear reduction means (722). This is not the same as the differential actuator as claimed and defined in the specification. In fact it does not operate as a differential actuator either, the speed reduction means 712/gear reduction means 722 is a fixed actuator linked to a motor and the steering rack for the steering of the wheels, not a differential actuator, that is, configured "so that a given motion of the steering wheel may be supplemented by the motion of a differential actuator, for example, to produce a motion of the steerable road wheels that need not correspond to the given motion of the steering wheel". The speed reduction means/gear reduction means 712/722 does not and cannot perform this function as the Examiner suggests. Furthermore, as stated above, "when the differential actuator is inactive, the motion of the steerable road wheels directly corresponds to the steering wheel motion due to the articulated mechanical linkage, as in conventional systems". This is not at all the case for the a speed reduction means (712) and gear reduction means (722) as disclosed in Phillips. In fact, in order to isolate the electric motor 26 from the steering system in the event of a failure Phillips '459 specifically teaches having to disconnect the motor via a clutching mechanism.

"It is highly desirable that, should the powered assist to steering provided by the system 710 be terminated by the electronic control means 32 *a* in this manner, or should the system 710 otherwise fail, the vehicle can still be steered manually. Isolating the gear reduction means 722 and the electric motor 26 from the mechanical path of manual steering, however, substantially improves the ease of such manual steering. Without isolation, the driver would have to apply an additional torque, over and above that required for steering, in order to overcome the hindrance to steering presented by needing to manually drive the gear reduction means 722 and the electric motor 26. Accordingly, as shown in FIGS. 1 and 2, it is preferred that the system 710 further comprise clutch means 724 between the reduction gear means 722 and the supplemental pinion shaft 178. As is standard, the clutch means 724 is electrically activated during normal operation of the system 710, and reverts to its default disengaged condition should the system 710 become inoperative."

Applicants further draw to the Examiner's attention, that Phillips does not teach or disclose a "differential actuator". The Examiner suggests that speed reduction means (712) and gear reduction means (722) is equivalent to the claimed element but provides no explanation as to why it would be equivalent. Applicants have identified numerous reasons as to why the speed reduction means (712) and gear reduction means (722) is not equivalent to a differential actuator. Therefore, because Phillips '459 does not disclose the elements of

the invention it cannot anticipate Applicants Claims. Thus, Claims 16 -18 are in a condition for allowance, the rejections are improper, and they should be withdrawn.

Furthermore, with regard to Claim 18 specifically, Phillips '459 does not teach or disclose, a "differential unit is configured to provide a steering angle to said steering actuator that is substantially independent of an input from an operator." The Examiner relies upon Col. 26, lines 14 - 21. However, Applicants respectfully submit that the Examiner has mischaracterized the teachings of Phillips '459 with regard to the cited reference. At Col. 26, lines 14 - 21 Phillips states:

"Isolating the gear reduction means 722 and the electric motor 26 from the mechanical path of manual steering, however, substantially improves the ease of such manual steering. Without isolation, the driver would have to apply an additional torque, over and above that required for steering, in order to overcome the hindrance to steering presented by needing to manually drive the gear reduction means 722 and the electric motor 26."

Applicants respectfully contend that the above cited disclosure of Phillips does not teach or disclose "a differential unit is configured to provide a steering angle to said steering actuator that is substantially independent of an input from an operator" There is no teaching in the cited terminology of the gear reduction means 722 providing a steering angle to a steering actuator substantially independent of an input from an operator. On the contrary, the teaching is quite the opposite. That is, the need in the Phillips configuration to isolate the gear reduction means 722 from the operator to avoid imposing additional torque requirements on the operator for steering. Therefore, because Phillips '459 does not disclose the elements of the invention it cannot anticipate Applicants Claims. Thus, Claims 18 is in a condition for allowance, the rejection is improper, and it should be withdrawn.

In reference to Detailed Action Item 6:

Claims 4 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Collier-Hallman et al. U.S. Patent 6,122,579, hereinafter denoted Collier-Hallman '579.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, coupled with knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references; and that the proposed modification of

the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d, 1016, 1023 (Fed. Cir. 1996). See MPEP 2143

Establishing a prima facie case of obviousness requires that all elements of the invention be disclosed in the prior art. *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

Further, even assuming that all elements of an invention are disclosed in the prior art, an Examiner cannot establish obviousness by locating references that describe various aspects of a patent applicant's invention without also providing evidence of the motivating force which would have impelled one skilled in the art to do what the patent applicant has done. *Ex parte Levensgood*, 28 U.S.P.Q. 1300 (Bd. Pat. App. Int. 1993). The references, when viewed by themselves and not in retrospect, must suggest the invention. *In Re Skoll*, 187 U.S.P.Q. 481 (C.C.P.A. 1975).

Considering Claims 4 and 12, Applicants respectfully contend that Collier-Hallman '579 does not teach or disclose each element of the claims. Specifically, as stated with the arguments presented above for Claims 1 and 6 respectively, Collier-Hallman '579 does not disclose or teach each of the elements of the claimed invention. Therefore, because Collier-Hallman '579 does not disclose or teach each of the elements in the claimed invention, the Examiner has not made a prima facie case for obviousness as to Claims 4 and 12. Thus, Claims 4 and 12 are allowable, the rejections are improper, and they should be withdrawn.

Moreover, the Examiner suggests in the response to arguments that the Applicants have made sweeping objections of the rejections without providing "why a particular reference fails to disclose the particular element." Applicants respectfully submit, that the "why" was provided in each instance based upon the rejections of the independent claims. It is not necessary to address each particular claimed element of a dependent claim if the cited references do not teach or disclose each of the elements of the claimed invention in the independent claims. See for example, MPEP 2143. Applicants respectfully submit that it is believed that the Office Actions have been fully responded to based on the arguments previously presented as well as those presented herein.

Claims 2, 3, 14, 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Collier-Hallman '579 in view of Yamauchi 6,135,233, hereinafter Yamauchi '233.



Considering Claims 2 and 3, Applicants respectfully contend as stated with the arguments for Claim 1 presented above, that neither Collier-Hallman '579 nor Yamauchi '233 disclose each element of the claimed invention. Therefore, because neither Collier-Hallman '579 nor Yamauchi '233 alone or in combination, disclose or teach each of the elements in the claimed invention, the Examiner has not made a prima facie case for obviousness as to Claims 2 and 3. Thus, Claims 2 and 3 are allowable, the rejections are improper, and they should be withdrawn.

Considering Claims 14 and 26, Applicants respectfully contend that as stated with the arguments for Claim 1 presented above, neither Collier-Hallman '579 nor Yamauchi '233 alone or in combination, disclose or teach each of the elements in the claimed invention. Specifically, neither Collier-Hallman '579 nor Yamauchi '233 disclose or teach, "receiving a stability input indicative of a dynamic stability of the motor vehicle". To support the rejection, the Examiner relies upon Collier-Hallman '579 at Col. 2, lines 46 - 77 referring to the velocity and pinion angle. However, at Col. 2, lines 46 - 47 of Collier-Hallman '579 there is no disclosure of an element indicative of the dynamic stability of the vehicle. Collier-Hallman '579 merely discloses receiving a steering angle and a vehicle velocity. Furthermore, neither Collier-Hallman '579 nor Yamauchi '233 teach or disclose, "calculating a correction signal in accordance with the operator input and the stability input." Similar to the arguments for Claim 1, there is no teaching in the cited references that a correction signal is computed prior to the filtering. Therefore, because neither Collier-Hallman '579 nor Yamauchi '233, whether alone or in combination, disclose or teach each of the elements in the claimed invention, the Examiner has not made a prima facie case for obviousness as to Claims 14 and 26. Thus, Claims 14 and 26 are allowable, the rejections are improper, and they should be withdrawn.

With regard to Claims 15, this claim includes the abovementioned limitations and based on the arguments above are therefore now allowable. Additionally, Claim 15 depends from Claim 14, which is now allowable based upon the abovementioned reasoning, and therefore because this claim depends from a claim that is allowable, it too is allowable and the rejections should be withdrawn. MPEP 2143.03.

Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phillips '459 in view of Collier-Hallman '579. Applicants respectfully contend that the explanation provided in the Office Action mischaracterizes the disclosure of Collier-Hallman '579 and/or Phillips '459. Furthermore, for the reasons previously stated with respect to

Collier-Hallman and/or Phillips, neither Collier-Hallman '579 nor Phillips '459 whether alone or in combination teach or disclose each element of the claimed invention. Therefore, because neither Collier-Hallman '579 nor Phillips '459, whether alone or in combination, disclose or teach each of the elements in the claimed invention, the Examiner has not made a prima facie case for obviousness as to Claims 21 and 22. Thus, Claims 21 and 22 are allowable, the rejections are improper, and they should be withdrawn.


The amendments and arguments presented herein are made for the purposes of better defining the invention, rather than to overcome the rejections for patentability. The claims were not amended to overcome the prior art and therefore, no presumption should attach that either the claims have been narrowed over those earlier presented, or that subject matter or equivalents thereof to which the Applicants are entitled has been surrendered. Reconsideration and allowance of the claims is respectfully requested in view of the amendments and preceding remarks. It is believed that the foregoing remarks are fully responsive to the Office Action and that the claims herein should be allowable to the Applicants.

In the event the Examiner has any queries regarding the instantly submitted Response, the undersigned respectfully requests the courtesy of a telephone conference to discuss any matters in need of attention.

If there are any additional charges with respect to this Response or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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